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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/671,815

09/26/2003

Peter J. Hanberg

42P16448

6864

7590

01/04/2007

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EXAMINER

GOUDREAU, GEORGE A

ART UNIT

PAPER NUMBER

1763

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/671,815

Applicant(s)

HANBERG, PETER J.

Examiner

George A. Goudreau

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-9,11 and 31-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,5-9,11 and 31 is/are allowed.
- 6) ☒ Claim(s) 32-33 is/are rejected.
- 7) ☒ Claim(s) 34-41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

George A. Goudreau
GEORGE GOUDREAU
PRIMARY EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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1. Applicant's arguments with respect to claims of record have been considered but are moot in view of the new ground(s) of rejection.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 32-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Wakejima et. al. (2002/0,025,664).

Wakejima et. al. disclose a process for forming a T-gate on a wafer which is comprised of the following steps:

- A SiO₂ layer (2) is formed onto an epi layer (1) on a wafer. (The FET epi layer is a type of active layer in a hetero-junction.);
- A patterned photo resist etch mask (3) is formed onto the surface of the SiO₂ layer (2).;
- A trench is etched into the SiO₂ layer using a CF₄ rie-etching step following by a SF₆ rie etching step.;
- A WSi₂ overgrowth layer (5) is formed onto the surface of the wafer as well as inside the trench etched into the SiO₂ layer.;
- A TiN layer (6) is formed onto the WSi₂ layer.;
- A low resistance metal (7) is formed onto the surface of the TiN layer.;

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-The TiN layer is patterned using the low resistance metal (7) as an etch mask, and an Ar ion milling step.;

-A TiN layer (8) is conformably formed onto the surface of the wafer.;

-A patterned photo resist etch mask is used in the patterning of the conductive layers to form a T-gate structure. (Both an Ar ion milling step, and a rie-etching step are employed in the patterning of the conductive layers to form the T-gate structure.); and

-The SiO₂ layer (2) is removed from the surface of the wafer using a BHF wet etching step to leave behind a T-gate structure with a shank section on the surface of the wafer.

This is discussed specifically on page 4; and discussed in general on pages 1-7.

This is shown specifically in figures 1-9; and shown in general in figures 1-11.

4. Claims 1, 3, 5-9, 11, and 31 are allowed.
5. Claims 34-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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7. Any inquiry concerning this communication should be directed to examiner

George A. Goudreau at telephone number (571)-272-1434.

A handwritten signature in cursive script that reads "George A. Goudreau". The signature is written in black ink and is positioned above the printed name and title.

George A. Goudreau

Primary Examiner

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